

What is claimed is:

1. A method in scalable media data coding, wherein original media data having a plurality of original coefficients is presented in a plurality of layers including a base layer, the base layer associated with a plurality of base-layer coefficients corresponding to original coefficients, each original coefficient having an original value, and wherein a binarization procedure is undertaken for forming a plurality of enhancement layers, each enhancement layer having a plurality of enhancement layer coefficients corresponding to the base-layer coefficients and at least partially based upon a predicted value of the enhancement layer coefficients corresponding to the original coefficients, said method comprising:

obtaining intervals at least partially based on a quantization step-size of an enhancement layer and reconstructed values of the enhancement layer coefficients associated with at least one of a plurality of layers including said enhancement layer, other enhancement layers and the base layer;

refining the intervals at least partially based on the relationship between the predicted values, the original coefficients and the intervals;

re-computing the reconstructed values; and

reducing the quantization step-size for a next coefficient and a next enhancement layer.

2. The method of claim 1, wherein said obtaining comprises:

computing one of said intervals for each original coefficient to be encoded based on a reconstructed value corresponding to said each original coefficient and the quantization step-size.

3. The method of claim 2, further comprising:

possibly emitting a value at least partially depending upon the position of said each original coefficient, the position of the predicted value of the enhancement layer coefficient corresponding to said each original coefficient, relative to each other and relative to said interval, for refining said interval at least partially based on the emitted value for providing a refined interval.

4. The method of claim 3, wherein said re-computing of the reconstructed value is at least partially based on said refined interval.

5. The method of claim 4, further comprising:

5 repeating said obtaining, emitting, refining, re-computing and reducing until the quantization step-size reaches a predetermined value.

6. The method of claim 5, wherein the predetermined value is zero.

10 7. The method of claim 3, wherein the value is a binary digit value.

8. The method of claim 7, wherein the value is one of two binary digit values of zero and one.

15 9. The method of claim 8, wherein said interval has a center, and wherein the emitted value is one or zero is partially depending upon the position of said each original coefficient relative to the center of the interval.

20 10. The method of claim 2, wherein said interval has a boundary and wherein said refining of the interval is at least partially based upon whether said each original coefficient falls within the boundary of the interval.

11. A coding device for use in scalable media data coding, wherein original media data having a plurality of original coefficients is presented in a plurality of layers including a base layer, the base layer associated with a plurality of base-layer coefficients corresponding to original coefficients, each original coefficient having an original value, and wherein a binarization procedure is undertaken for forming a plurality of enhancement layers, each enhancement layer having a plurality of enhancement layer coefficients corresponding to the base-layer coefficients and at least partially based upon a predicted value of the enhancement layer coefficients corresponding to the original coefficients, said device comprising:

a binarization module, responsive to the original media data, for providing a signal indicative to binarized data; and

a coding module, responsive to the signal, for providing encoded media data at least partially based on the binarized data, wherein the binarization module comprises a mechanism to carry out the steps of:

obtaining intervals at least partially based on a quantization step-size of an enhancement layer and reconstructed values of the enhancement layer coefficients associated with at least one of a plurality of layers including said enhancement layer, other enhancement layers and the base layer;

refining the intervals at least partially based on the relationship between the predicted values, the original coefficients and the intervals;

re-computing the reconstructed values; and
reducing the quantization step-size for a next coefficient and a next enhancement layer.

12. The device of claim 11, wherein the obtaining step comprises:

computing one of said intervals for each original coefficient to be encoded based on a reconstructed value corresponding to said each original coefficient and the quantization step-size.

13. The device of claim 12, wherein the mechanism further carries out the step of:

possibly emitting a value for providing the binarized data at least partially depending upon the position of said each original coefficient, the position of the predicted value of the enhancement layer coefficient corresponding to said each original coefficient, relative to each other and relative to said interval, for refining said interval at least partially based on the emitted value for providing a refined interval..

14. The device of claim 13, wherein the step of re-computing the reconstructed value is at least partially based on said refined interval.

15. The device of claim 14, wherein the mechanism further repeats the steps of obtaining, emitting, refining, re-computing and reducing until the quantization step-size reaches a predetermined value.

16. The device of claim 13, wherein the binarized data contains binary digit values of zero and one.

17. The device of claim 11, further comprising:

5 a base layer encoder, responsive to the original media data, for providing base layer encoded data to the coding module.

18. The device of claim 11, wherein the mechanism comprises a software program for carrying out the steps.

10

19. A software product for use in a scalable media data coding device, wherein original media data having a plurality of original coefficients is presented in a plurality of layers including a base layer, the base layer associated with a plurality of base-layer coefficients corresponding to original coefficients, each original coefficient having an original value, and wherein a binarization procedure is undertaken for forming a plurality of enhancement layers, each enhancement layer having a plurality of enhancement layer coefficients corresponding to the base-layer coefficients and at least partially based upon a predicted value of the enhancement layer coefficients corresponding to the original coefficients, said software product comprising:

15

20 a code for obtaining intervals at least partially based on a quantization step-size of an enhancement layer and reconstructed values of the enhancement layer coefficients associated with at least one of a plurality of layers including said enhancement layer, other enhancement layers and the base layer;

25

a code for refining the intervals at least partially based on the relationship between the predicted values, the original coefficients and the intervals;

a code for re-computing the reconstructed values; and

a code for reducing the quantization step-size for a next coefficient and a next enhancement layer.

30

20. The software product of claim 19, wherein the code for obtaining comprises:

a code for computing one of said intervals for each original coefficient to be encoded based on a reconstructed value corresponding to said each original coefficient and the quantization step-size.

21. The software product of claim 20, further comprising:

a code for possibly emitting a value at least partially dependent upon the position of said each original coefficient, the position of the predicted value of the enhancement layer coefficient corresponding to said each original coefficient, relative to each other and relative to said interval, for refining said interval at least partially based on the emitted value for providing a refined interval.

22. The software produce of claim 21, wherein the code for re-computing the reconstructed value is at least partially based on said refined interval.

23. The software product of claim 22, further comprising:

a processing loop for repeating the codes for obtaining, emitting, refining, re-computing and reducing until the quantization step-size reaches a predetermined value.